

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A display driver circuit which drives signal electrodes of a display device based on gray-scale data, comprising:

first to (M+N)th (M and N are positive integers) shift register blocks;

a data input control circuit which controls input of the gray-scale data supplied to the first to (M+N)th shift register blocks;

first to (M+N)th data mask circuits which generate first to (M+N)th gray-scale data by performing mask control for the gray-scale data supplied to the first to (M+N)th shift register blocks and output the first to (M+N)th gray-scale data;

first to (M+N)th data mask control circuits which generate first to (M+N)th data mask control signals for performing mask control for the first to (M+N)th gray-scale data; and

a signal electrode driver circuit which drives the signal electrodes by using drive voltages corresponding to the first to (M+N)th gray-scale data, the first to (M+N)th gray-scale data being held in the first to (M+N)th shift register blocks,

wherein the first to Mth shift register blocks are disposed in a region on a first direction side of the data input control circuit, shift a given data enable signal input to the first shift register block and output the shifted data enable signal to a shift register block adjacent in a second direction opposite to the first direction, and hold the first to Mth gray-scale data based on the shifted data enable signal,

wherein the (M+1)th to (M+N)th shift register blocks are disposed in a region on the second direction side of the data input control circuit, shift a data enable signal input to the (M+1)th shift register block from the Mth shift register block and output the shifted data

enable signal to a shift register block adjacent in the second direction, and hold the (M+1)th to (M+N)th gray-scale data based on the shifted data enable signal,

wherein the first to Mth data mask circuits are connected in the second direction in order from the first to Mth data mask circuit and mask the first to Mth gray-scale data in order from the first to Mth data mask ~~circuit~~, and circuit,

wherein the (M+1)th to (M+N)th data mask circuits are connected in the second direction in order from the (M+1)th to (M+N)th data mask circuit and unmask the (M+1)th to (M+N)th gray-scale data in order from the (M+1)th to (M+N)th data mask ~~circuit~~. circuit,

wherein an ath ($1 \leq a \leq M$; a is an integer) data mask control circuit generates an ath data mask control signal based on a data enable signal output from an ath shift register block and an ath data mask circuit masks an ath gray-scale data based on the ath data mask control signal, and

wherein a bth ($M+1 \leq b \leq M+N$; b is an integer) data mask control circuit generates a bth data mask control signal based on a data enable signal output from a (b-1)th shift register block and a bth data mask circuit masks a bth gray-scale data based on the bth data mask control signal.

2. (Canceled)

3. (Currently Amended) The display driver circuit as defined in ~~claim 2~~ claim 1,

wherein a cth ($1 \leq c \leq M+N$; c is an integer) shift register block shifts a data enable signal in the first direction and holds a cth gray-scale data based on the data enable signal shifted in the first direction, when a given shift signal is at a first level,

wherein the cth shift register block shifts a data enable signal in the second direction and holds the cth gray-scale data based on the data enable signal shifted in the second direction, when the shift signal is at a second level, and

wherein a cth data mask control circuit generates a cth data mask control signal according to the level of the shift signal.

4. (Original) The display driver circuit as defined in claim 1, further comprising:
a clock input control circuit which controls input of a clock signal which is supplied to each of the first to (M+N)th shift register blocks and determines shift timing of a data enable signal; and
first to (M+N)th clock mask circuits which generate first to (M+N)th clock signals by performing mask control for the clock signal supplied to the first to (M+N)th shift register blocks and output the first to (M+N)th clock signals,
wherein the first to Mth shift register blocks are disposed in the region on the first direction side of the clock input control circuit and shift a data enable signal based on the first to Mth clock signals,
wherein the (M+1)th to (M+N)th shift register blocks are disposed in the region on the second direction side of the clock input control circuit and shift a data enable signal based on the (M+1)th to (M+N)th clock signals,
wherein the first to Mth clock mask circuits are connected in the second direction in order from the first to Mth clock mask circuit and mask the first to Mth clock signals in order from the first to Mth clock mask circuit, and
wherein the (M+1)th to (M+N)th clock mask circuits are connected in the second direction in order from the (M+1)th to (M+N)th clock mask circuit and unmask the (M+1)th to (M+N)th clock signals in order from the (M+1)th to (M+N)th clock mask circuit.
5. (Original) The display driver circuit as defined in claim 4, further comprising:
first to (M+N)th clock mask control circuits which generate first to (M+N)th clock mask control signals for performing mask control for the first to (M+N)th clock signals,

wherein a d th ($1 \leq d \leq M$; d is an integer) clock mask control circuit generates a d th clock mask control signal based on a data enable signal output from a d th shift register block, and

wherein an e th ($M+1 \leq e \leq M+N$; e is an integer) clock mask control circuit generates an e th clock mask control signal based on a data enable signal output from an $(e-1)$ th shift register block.

6. (Original) The display driver circuit as defined in claim 5,

wherein an f th ($1 \leq f \leq M+N$; f is a positive integer) shift register block shifts a data enable signal in the first direction and holds an f th gray-scale data based on the data enable signal shifted in the first direction, when a given shift signal is at a first level,

wherein the f th shift register block shifts a data enable signal in the second direction and holds the f th gray-scale data based on the data enable signal shifted in the second direction, when the shift signal is at a second level, and

wherein an f th clock mask control circuit generates an f th clock mask control signal according to the level of the shift signal.

7. (Currently Amended) A display driver circuit which drives signal electrodes of a display device based on gray-scale data, comprising:

first to $(M+N)$ th (M and N are positive integers) shift register blocks;
a clock input control circuit which controls input of a clock signal which is supplied to each of the first to $(M+N)$ th shift register blocks and determines shift timing;

first to $(M+N)$ th clock mask circuits which generate first to $(M+N)$ th clock signals by performing mask control for the clock signal supplied to the first to $(M+N)$ th shift register blocks and output the first to $(M+N)$ th clock signals;

first to (M+N)th clock mask control circuits which generate first to (M+N)th clock mask control signals for performing mask control for the first to (M+N)th clock signals;
and

a signal electrode driver circuit which drives the signal electrodes by using drive voltages corresponding to first to (M+N)th gray-scale data, the first to (M+N)th gray-scale data being held in the first to (M+N)th shift register blocks,

wherein the first to Mth shift register blocks are disposed in a region on a first direction side of the clock input control circuit, shift a given data enable signal input to the first shift register block based on the first to Mth clock signals and output the shifted data enable signal to a shift register block adjacent in a second direction opposite to the first direction, and hold the first to Mth gray-scale data based on the shifted data enable signal,

wherein the (M+1)th to (M+N)th shift register blocks are disposed in a region on the second direction side of the clock input control circuit, shift a data enable signal input to the (M+1)th shift register block from the Mth shift register block based on the (M+1)th to (M+N)th clock signals and output the shifted data enable signal to a shift register block adjacent in the second direction, and hold the (M+1)th to (M+N)th gray-scale data based on the shifted data enable signal,

wherein the first to Mth clock mask circuits are connected in the second direction in order from the first to Mth clock mask circuit and mask the first to Mth clock signals in order from the first to Mth clock mask ~~circuit~~, and circuit,

wherein the (M+1)th to (M+N)th clock mask circuits are connected in the second direction in order from the (M+1)th to (M+N)th clock mask circuit and unmask the (M+1)th to (M+N)th clock signals in order from the (M+1)th to (M+N)th clock mask ~~circuit~~circuit, and

wherein an ath ($1 \leq a \leq M$; a is an integer) clock mask control circuit generates

an ath clock mask control signal based on a data enable signal output from an ath shift register block and an ath clock mask circuit masks an ath clock signal data based on the ath clock mask control signal, and

wherein a bth ($M+1 \leq b \leq M+N$; b is an integer) clock mask control circuit generates a bth clock mask control signal based on a data enable signal output from a (b-1)th shift register block and a bth clock mask circuit masks a bth clock signal based on the bth clock mask control signal.

8. (Currently Amended) A display driver circuit which drives signal electrodes of a display device based on gray-scale data, comprising:

first to Mth (M is a positive integer) shift register blocks;

a data input control circuit which controls input of the gray-scale data supplied to the first to Mth shift register blocks;

first to Mth data mask circuits which generate first to Mth gray-scale data by performing mask control for the gray-scale data supplied to the first to Mth shift register blocks and output the first to Mth gray-scale data, first to Mth gray-scale data being held in the first to Mth shift register blocks;

first to Mth data mask control circuits which generate first to Mth data mask control signals for performing mask control for the first to Mth gray-scale data; and

a signal electrode driver circuit which drives the signal electrodes by using drive voltages corresponding to the first to Mth gray-scale data,

wherein the first to Mth shift register blocks are disposed in a region on a first direction side of the data input control circuit, shift a given data enable signal input to the first shift register block and output the shifted data enable signal to a shift register block adjacent in a second direction opposite to the first direction, and hold the first to Mth gray-scale data,

for which mask control is performed by the first to Mth data mask circuits, based on the shifted data enable ~~signal~~, and signal,

wherein the first to Mth data mask circuits are connected in the second direction in order from the first to Mth data mask circuit and mask the first to Mth gray-scale data in order from the first to Mth data mask ~~circuit~~ circuit,

wherein an ath ($1 \leq a \leq M$; a is an integer) data mask control circuit generates an ath data mask control signal based on a data enable signal output from an ath shift register block and an ath data mask circuit masks an ath gray-scale data based on the ath data mask control signal.

9. (Currently Amended) A display driver circuit which drives signal electrodes of a display device based on gray-scale data, comprising:

first to Nth (N is a positive integer) shift register blocks;

a data input control circuit which controls input of the gray-scale data supplied to the first to Nth shift register blocks;

first to Nth data mask circuits which generate first to Nth gray-scale data by performing mask control for the gray-scale data supplied to the first to Nth shift register blocks and output the first to Nth gray-scale data, the first to Nth gray-scale data being held in the first to Nth shift register blocks;

first to Nth data mask control circuits which generate first to Nth data mask control signals for performing mask control for the first to Nth gray-scale data; and

a signal electrode driver circuit which drives the signal electrodes by using drive voltages corresponding to the first to Nth gray-scale data,

wherein the first to Nth shift register blocks are disposed in a region on a second direction side of the data input control circuit, shift a given data enable signal input to the first shift register block and output the shifted data enable signal to a shift register block

adjacent in the second direction, and hold the first to Nth gray-scale data, for which mask control is performed by the first to Nth data mask circuits, based on the shifted data enable ~~signal, and signal,~~

wherein the first to Nth data mask circuits are connected in the second direction in order from the first to Nth data mask circuit and unmask the first to Nth gray-scale data in order from the first to Nth data mask ~~circuit circuit,~~ and

wherein an ath ($1 \leq a \leq N$; a is an integer) data mask control circuit generates an ath data mask control signal based on a data enable signal output from an ath shift register block and an ath data mask circuit masks an ath gray-scale data based on the ath data mask control signal.

10. (Currently Amended) A display driver circuit which drives signal electrodes of a display device based on gray-scale data, comprising:

first to Mth (M is a positive integer) shift register blocks;

a clock input control circuit which controls input of a clock signal which is supplied to each of the first to Mth shift register blocks and determines shift timing;

first to Mth clock mask circuits which generate first to Mth clock signals by performing mask control for the clock signal supplied to the first to Mth shift register blocks and output the first to Mth clock signals;

first to Mth clock mask control circuits which generate first to Mth clock mask control signals for performing mask control for the first to Mth clock signals; and

a signal electrode driver circuit which drives the signal electrodes by using drive voltages corresponding to first to Mth gray-scale data,

wherein the first to Mth shift register blocks are disposed in a region on a first direction side of the clock input control circuit, shift a given data enable signal input to the first shift register block based on the first to Mth clock signals and output the shifted data

enable signal to a shift register block adjacent in a second direction opposite to the first direction, and hold the first to Mth gray-scale data based on the shifted data enable signal, and signal,

wherein the first to Mth clock mask circuits are connected in the second direction in order from the first to Mth clock mask circuit and mask the first to Mth clock signals in order from the first to Mth clock mask ~~circuit~~circuit, and

wherein an ath ($1 \leq a \leq M$; a is an integer) clock mask control circuit generates an ath clock mask control signal based on a data enable signal output from an ath shift register block and an ath clock mask circuit masks an ath clock signal data based on the ath clock mask control signal.

11. (Currently Amended) A display driver circuit which drives signal electrodes of a display device based on gray-scale data, comprising:

first to Nth (N is a positive integer) shift register blocks;

a clock input control circuit which controls input of a clock signal which is supplied to each of the first to Nth shift register blocks and determines shift timing;

first to Nth clock mask circuits which generate first to Nth clock signals by performing mask control for the clock signal supplied to the first to Nth shift register blocks and output the first to Nth clock signals;

first to Nth clock mask control circuits which generate first to Nth clock mask control signals for performing mask control for the first to Nth clock signals; and

a signal electrode driver circuit which drives the signal electrodes by using drive voltages corresponding to first to Nth gray-scale data,

wherein the first to Nth shift register blocks are disposed in a region on a second direction side of the clock input control circuit, shift a given data enable signal input to the first shift register block based on the first to Nth clock signals and output the shifted

data enable signal to a shift register block adjacent in the second direction, and hold the first to Nth gray-scale data based on the shifted data enable ~~signal, and~~ signal,

wherein the first to Nth clock mask circuits are connected in the second direction in order from the first to Nth clock mask circuit and unmask the first to Nth clock signals in order from the first to Nth clock mask ~~circuit, circuit, and~~

wherein an ath ($1 \leq a \leq N$; a is an integer) clock mask control circuit generates an ath clock mask control signal based on a data enable signal output from an ath shift register block and an ath clock mask circuit masks an ath clock signal data based on the ath clock mask control signal.

12. (Original) A display device comprising:

pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;

a scan electrode driver circuit which drives the scan electrodes; and
the display driver circuit as defined in claim 1 which drives the signal electrodes based on the gray-scale data.

13. (Original) A display device comprising:

pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;

a scan electrode driver circuit which drives the scan electrodes; and
the display driver circuit as defined in claim 7 which drives the signal electrodes based on the gray-scale data.

14. (Original) A display device comprising:

pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;

a scan electrode driver circuit which drives the scan electrodes; and

the display driver circuit as defined in claim 8 which drives the signal electrodes based on the gray-scale data.

15. (Original) A display device comprising:
pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;

a scan electrode driver circuit which drives the scan electrodes; and
the display driver circuit as defined in claim 9 which drives the signal electrodes based on the gray-scale data.

16. (Original) A display device comprising:
pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;
a scan electrode driver circuit which drives the scan electrodes; and
the display driver circuit as defined in claim 10 which drives the signal electrodes based on the gray-scale data.

17. (Original) A display device comprising:
pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;
a scan electrode driver circuit which drives the scan electrodes; and
the display driver circuit as defined in claim 11 which drives the signal electrodes based on the gray-scale data.

18. (Original) A display device comprising:
a display panel including pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;
a scan electrode driver circuit which drives the scan electrodes; and

the display driver circuit as defined in claim 1 which drives the signal electrodes based on the gray-scale data.

19. (Original) A display device comprising:

a display panel including pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;

a scan electrode driver circuit which drives the scan electrodes; and
the display driver circuit as defined in claim 7 which drives the signal electrodes based on the gray-scale data.

20. (Original) A display device comprising:

a display panel including pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;

a scan electrode driver circuit which drives the scan electrodes; and
the display driver circuit as defined in claim 8 which drives the signal electrodes based on the gray-scale data.

21. (Original) A display device comprising:

a display panel including pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;

a scan electrode driver circuit which drives the scan electrodes; and
the display driver circuit as defined in claim 9 which drives the signal electrodes based on the gray-scale data.

22. (Original) A display device comprising:

a display panel including pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;

a scan electrode driver circuit which drives the scan electrodes; and

the display driver circuit as defined in claim 10 which drives the signal electrodes based on the gray-scale data.

23. (Original) A display device comprising:

a display panel including pixels specified by a plurality of scan electrodes and a plurality of signal electrodes which intersect each other;

a scan electrode driver circuit which drives the scan electrodes; and
the display driver circuit as defined in claim 11 which drives the signal electrodes based on the gray-scale data.